System and Method for Real-Time Electronic

Inquiry, Delivery, and Reporting of Credit Information

BACKGROUND

5   This invention relates to computerized information management and processing systems generally, and more particularly to a computer-implemented system and method for automatically sending, retrieving, and delivering credit information via the Internet. In one aspect, the present invention pertains to a system for providing real-time electronic inquiry and delivery of personal credit information to any remote user (i.e., client) having

10   an appropriate computer and Internet access software. In a second aspect, the present invention pertains to a method of using the Internet and web sites for accepting client requests for credit information in HyperText Markup Language (HTML) format, acquiring the information from credit information repositories or bureaus by converting the HTML requests to a format the credit bureau will accept, reformatting the response

15   from the credit bureau back into HTML format, and transmitting the HTML response to the client's computer.

When a potential borrower wishes to obtain a loan to finance a major consumer purchase such as a house or automobile, the vendor or lending institution usually requires the potential borrower to fill out a loan application. Typically, the applicant completes

20   the application by hand, providing information such as name, address, social security number, employer, and previous addresses. The information contained in the application can be confidential in nature and should be protected from inadvertent disclosure to those not having a need-to-know.

Using information from the loan application, a sales representative or loan officer may request an inquiry copy of the applicant's credit report from a credit bureau. Currently, the United States has three major credit bureaus – Equifax, Trans Union, and Experian (formerly TRW). Hundreds of smaller credit bureaus exist, but virtually all are affiliated with one or more of the three major credit bureaus. The sales representative or loan officer may request the inquiry copy, for example, by using a personal computer having appropriate software, by calling the credit bureau to obtain a teletype (TTY) credit report, or by on-line request using a teleprompter, which is a small terminal provided by the credit bureau. Access is typically by conventional dial-up methods. Information returned in the response from the credit bureau is also confidential and should be protected.

Credit bureaus receive income from subscribers for the credit bureau's services. Credit bureaus charge the subscribers a fee whenever the subscribers "pull" a credit report. In return, the credit bureaus maintain the files of credit information and provide the information to their subscribers. Credit bureaus update their files by using, for example, the inquiries or requests made by subscribers and accounts receivable tapes provided by subscribers. In addition, each credit bureau has its own format for receiving requests from, and sending responses to, its subscribers. Certain items in credit bureau inquiry responses are encoded or abbreviated such that the information in the response may be very difficult to read and understand, which can adversely impact loan application decisions.

The current approaches for request and delivery of credit inquiries have, but are not necessarily limited to, the following problems and drawbacks. First, requests and

responses transmitted using modems and conventional dial-up lines may not be encrypted or provide adequate security for the confidential information. Second, current credit inquiry systems may require users to maintain proprietary software on their computers, which could be costly. In addition, responses delivered to subscribers using the credit

5   bureau's format may be difficult to read and understand. Finally, current systems often do not enable businesses to provide to credit bureaus on-line credit reports concerning borrowers.

Certain aspects of the credit inquiry and reporting process have been automated to various extents. However, a need exists for a comprehensive system for requesting

10   inquiries from and providing reports to credit bureaus that solves the problems outlined above.

SUMMARY OF THE INVENTION

The present invention provides such a system and method for requesting credit

15   inquiries by clients, delivering responses to credit inquiries from credit bureaus to clients, and reporting credit information by clients to credit bureaus, which eliminate the drawbacks of the currently employed methods of credit inquiry and reporting.

The present invention provides a client-server solution for electronic inquiry, delivery, and reporting of personal credit information to and from credit bureaus using

20   either serial communications and dial-up access, or the Internet and Transmission Control Protocol/Internet Protocol (TCP/IP). In the preferred embodiment, the present invention uses the Internet as a communications link between the client (also referred to as the user)

and a service provider's central processing unit (CPU), such as a web server that functions as an intermediary between the client and the credit bureaus.

To access the system of the present invention, the client has the following: (1) access to the Internet, such as a personal computer with Internet connection; (2) means for secure transmission over the Internet, such as a web browser with 128-bit secure sockets layer ("SSL") encryption capability (SSL is standard, for example, in the Netscape Navigator and Microsoft Internet Explorer web browsers); and (3) an account set up on the central processor. In addition, a security certificate issued by a trusted certifying authority, such as Verisoft, is installed on the client's computer and on the central processor. A security certificate is a password-protected, encrypted file of data identifying the transmitting entity. The certificate also includes encryption keys or algorithms, allowing the entities exchanging data to authenticate each other.

The client uses a web browser on the client's computer or terminal to access the web site that is hosted on the service provider's CPU of the present invention. First, the client logs on to the system using a user name and password. Then the client enters data (e.g., customer name, address, and social security number) on an Inquiry Form generated by the CPU. When the client clicks a "SUBMIT" button on the form, the client's web browser encrypts the data using standard 128-bit SSL technology, which is provided by SSL browsers and web servers. If the client's web browser is not a 128-bit SSL version, then the CPU informs the client that such a version must be downloaded before proceeding. The encrypted data, which is in the HTML format, is passed to a common gateway interface (CGI) program application residing on the CPU. CGI is a specification

that defines communications between information servers and resources on the server's host computer.

Next, the CGI application decrypts the data, parses the information from the form, and converts the information to a standard format required by the particular credit bureau

5 to receive the request. The credit bureau contacted may be one of the three major credit institutions (i.e., Equifax, Experian, or Trans Union), or any other credit bureau to which access has been previously authorized. The CGI application then places the reformatted data into an input file and initiates a query to the credit bureau's computer. Using a dedicated connection circuit, the CGI application transmits the query to the credit bureau.

10 The credit bureau sends a response to the query to the CPU in non-HTML format.

After the CPU receives the response from the credit bureau, the CGI application creates an output file containing the response from the credit bureau. The CGI application parses and converts the data in the output file to HTML format and encrypts the data, preferably using 128-bit SSL technology. The present invention does not

15 analyze or permanently save the results it receives from the credit bureau. The CGI application then sends the HTML-formatted data back to the client's web browser using the Internet, where the inquiry response is displayed in the client's web browser in a more easily read format.

Traditional means of obtaining an inquiry report involve a teletype machine or

20 software that uses a dial-up process where a modem dials a credit institution modem. Because the CPU of the present invention is directly linked to the credit bureau mainframe computer, no waiting period is required for modem protocol and associated responses from either the CPU or the credit bureau. The transaction can be completed

and the response made available to the client in as little as about 5 seconds to about 10 seconds, depending on such factors as, for example, type of computers used, bandwidth, and number of users.

From the foregoing, it will be apparent to the reader that a primary object of the present invention is to provide a novel, improved system and method for requesting credit information from credit bureaus and delivering responses to credit inquiries to users in an easily understood format in shorter periods of time than is possible using current credit inquiry techniques. Thus, the present invention becomes a more valuable tool in providing the credit information necessary for making credit-related decisions.

Another primary object of the present invention is to provide a system and method for businesses to provide credit information or credit reports on-line to credit bureaus.

A major advantage of the present invention relates to receiving requests for credit information from clients in HTML format and sending responses back to clients in HTML format, which allows industry-standard Internet browsers to collect credit information and display credit inquiry responses from credit bureaus in a more readable format. The present invention provides a standard interface that is transparent to clients – clients do not have to interpret inquiry responses in various formats from different credit bureaus or enter data in various formats on different computer screens. Thus, a more specific object of the invention is to provide a fully automated, computer-based system for electronically inquiring, delivering, and reporting credit information using the Internet and World Wide Web.

Another object of the invention is to provide secure transmission of credit information and a level of security between clients and credit bureaus, wherein all communications pass through the CPU of the present invention and clients or third parties can not directly connect to a credit bureau without proper authorization.

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BRIEF DESCRIPTION OF THE DRAWINGS

These and other objects, features, and advantages of the present invention will become better understood upon review of the following description and accompanying drawings, in which:

10   Fig. 1 is a block diagram of a system for clients to make credit inquiries and credit bureaus to deliver credit inquiry responses to clients, all in accord with the principles of the present invention;

Fig. 2 is a flow diagram of a process for requesting credit information from credit bureaus and delivering responses to clients, in accord with the principles of the present 15   invention;

Fig. 3 is an example of a screen seen by a client at the client's computer or computer terminal when the client establishes an HTTP connection to the service provider's central processing unit, according to the present invention;

Fig. 4 is an example of a screen seen by a client at the client's computer or 20   computer terminal after the client has selected the "Members Only" link on the screen of Fig. 3, wherein the client is selecting the "Credit Bureau Inquiry" link;

Fig. 5 is an example of a screen seen by a client at the client's computer or computer terminal requesting the client to enter a user name and password, according to the present invention;

Fig. 6 is an example of a screen seen by a client at the client's computer or computer terminal when the client initiates a request for credit information, in accordance with the present invention;

Fig. 7 is a functional flow diagram of the central processing unit's software according to the present invention;

Fig. 8 is an example of a screen seen by a client at the client's computer or computer terminal when the client initiates the reporting of credit information to a credit bureau, in accordance with the present invention;

Fig. 9 is another example of a screen seen by a client at the client's computer or computer terminal when the client initiates the reporting of credit information to a credit bureau, in accordance with the present invention;

Fig. 10 is a third example of a screen seen by a client at the client's computer or computer terminal when the client initiates the reporting of credit information to a credit bureau, in accordance with the present invention;

Fig. 11 is a flow diagram of a process for reporting credit information to a credit bureau according to the principles of the present invention;

Fig. 12 is an example of a screen seen by a client at the client's computer or computer terminal after the client has selected the "Members Only" link on the screen of Fig. 3, wherein the client is selecting the "Credit Bureau Reporting" link; and

Fig. 13 is an example of a credit bureau response resulting from a client request for credit information, according to the present invention.

5   DETAILED DESCRIPTION OF THE INVENTION

The invention summarized above and defined by the enumerated claims may be better understood by referring to the following detailed description, which should be read in conjunction with the accompanying drawings. This detailed description of a particular preferred embodiment, set out below to enable one to build and use one particular

10   implementation of the invention, is not intended to limit the enumerated claims, but to serve as a particular example thereof. The particular example set out below is the preferred specific implementation of the present invention. Those skilled in the art should appreciate that they may readily use the concepts and specific embodiment disclosed as a basis for modifying or designing other methods and systems for carrying

15   out the same purposes of the present invention. Those skilled in the art should also realize that such equivalent assemblies do not depart from the spirit and scope of the invention in its broadest form.

Fig. 1 depicts a system that embodies the principles of the present invention (also referred to as "e-CBI"). The invention generally comprises an automated credit

20   information inquiry, delivery, and reporting system as shown. The major components of the system include a service provider's central processing unit or CPU (also referred to as the "e-CBI server") 2 and a communication network 4 for connecting the CPU 2 to clients' personal or other computers or terminals 6.

The CPU 2 functions as a centralized conduit for the collection and transmission of data between the clients 6 and the credit bureaus 8. The CPU 2 does not analyze or permanently save the results from the credit bureaus 8; rather, the CPU 2 passes the results directly to the client 6. Any number of clients 6 can access the CPU 2 to make

5   inquiries for credit information or provide reports to the credit bureaus 8. The CPU 2 can be any mainframe, super-mini, or minicomputer system having the capability of handling a real-time, multi-tasking, remote-access database application. In the preferred embodiment, the CPU 2 is an Intel 486 or higher processor-based computer running a UNIX operating system; however, any operating system with multiple-tasking

10   capabilities is appropriate.

A common gateway interface (CGI) script (also referred to as a CGI application or CGI application program) resides on the CPU 2. The CGI application consists of two program modules or processes – a main process and a child process. The main process communicates with the client 6 and performs functions such as preparing queries,

15   decoding results received from the credit bureaus 8, and formatting responses. The child process communicates with the credit bureau's computer 8. The CGI application is written in the "C" programming language. However, many other programming languages may be used to achieve the same functionality. The CGI application implements and controls the processing of requests (inquiries) from clients 6 for credit

20   information from credit bureaus 8 and delivery of the responses from the credit bureaus 8 to the clients 6, and the reporting of credit information from clients 6 to the credit bureaus 8.

The CGI application's processes embody the functions described herein and illustrated in the appended flow charts. However, it should be apparent that there could be many different ways of implementing the invention in computer programming, and the invention should not be construed as limited to any one set of computer program

5   instructions. Further, a skilled programmer would be able to write such computer programs to implement the disclosed invention without difficulty based on the flow charts and associated description. Therefore, disclosure of a particular set of program code is not considered necessary for an adequate understanding of how to make and use the invention.

10   Several configuration files govern the programs of the present invention. The configuration files can be used to adapt the present invention for retrieval of different inquiry responses from different credit bureaus. This allows customization without changing any of the "C" source code. The configuration files are categorized according to the inquiry and response features of the present invention.

15   The inquiry feature of the present invention (i.e., formulation and transmittal of the client's request for credit information) uses three types of configuration files. Session Definition Files determine which communication program should be used (i.e., serial or socket-based), names of various temporary files, which credit bureau **8** to contact, and other configuration files to use. Inquiry Definition Files describe the format of an Inquiry

20   Segment (i.e., the data associated with a request that is sent to a credit bureau **8**) required by a particular credit bureau **8**. Finally, a Session Script File describes the negotiation process required to log on to a credit bureau's computer, send the Inquiry Segment, and receive from the credit bureau **8** either a Report Segment (i.e., the data containing the

credit inquiry response from the credit bureau **8**) or an Error Segment (i.e., data related to errors in retrieving or transmitting credit bureau responses).

The response feature of the present invention (i.e., the return of a response from the credit bureau **8**) uses two types of configuration files. The first type, a Report

5 Description File, describes the format used by the credit bureau **8** when returning the response to the client inquiry to the CPU **2** in the form of a binary data segment. This file allows the programs to decipher or parse the incoming data. Output Description Files, the second type of configuration file associated with the response feature, describe how the data segment returned by the credit bureau **8** and parsed by the programs should be

10 displayed on the client's computer screen, printed on the client's printer, and saved in the client's internal archive files.

A communications network **4**, preferably the Internet, connects the CPU **2** to the clients' computers. Alternatively, the communications network **4** may take a variety of other forms, such as a local area network, a wide area network, a satellite

15 communications network, a cellular communications network, ordinary telephone lines, or private leased lines. The CPU **2** is also linked to one or more credit bureaus **8** by dedicated lines **10**.

In the preferred embodiment, the present invention uses the Internet **4** for communications between the clients' computers and the CPU **2** (which functions as a

20 web server), and the clients' computers have web browsers to access a web site hosted on the CPU **2**. To access the system of the present invention, the client **6**, preferably, has the following: (1) a computer with access to the Internet **4**, such as a personal computer with an Internet connection, although a mini-computer or mainframe computer may also be

used; (2) means for secure transmission over the Internet, such as a web browser with 128-bit secure sockets layer (SSL) encryption capability; and (3) an account set up on the central processor **2**. In addition, a security certificate issued by a trusted certifying authority, such as Verisoft, is installed on the client's computer and on the CPU **2**.

5   Communications between a web browser and a web server are typically made according to the HyperText Transfer Protocol (HTTP). However, HTTP is generally not secure. To provide additional security, public-key authentication and encryption can be added to HTTP. In the preferred embodiment, the CPU **2** of the present invention uses Hypertext Transfer Protocol Secure (HTTPS), which is a type of server software

10   providing digital certificate encryption of data using SSL technology. SSL technology is the standard industry method for protecting web communications.

The present invention provides isolation of the client **6** or third parties from the credit bureau **8**, which is achieved by the CPU **2** having two separate physical Ethernet interface cards. One card connects to the Internet-visible LAN and responds only to

15   HTTP data packet traffic, providing basic HTTP web server functionality. The CGI program, initiated by clients **6** through the HTTP/HTML interface, formats client **6** requests and initiates communications with a credit bureau **8** through the second Ethernet card. At no time is there any possibility of a direct feed-through of TCP/IP data packets between the two Ethernet cards – only the CGI program has access to a credit bureau's

20   router. Clients **6** cannot directly connect to the credit bureau **8** because all communications must pass through the CPU **2**. The CPU **2** thus performs a proxy function. Outside parties cannot physically gain access to and retrieve information from

a credit bureau **8** without first being properly authorized, resulting in a secure interface to the credit bureau **8**.

Fig. 2 depicts the high-level procedures involved in making credit inquiries and receiving credit bureau responses to inquiries. When a client **6** wants to request credit

5   information from a credit bureau **8**, the client **6** first logs on to the CPU **2** by connecting to an Internet Service Provider (ISP) **50** and establishing an HTTP connection **52** to the CPU **2**. Fig. 3 illustrates the first screen displayed to the client **6**. The client **6** selects the link for "Members Only," initiating an HTTPS session **54**. On the next screen displayed to the client **6**, the client **6** selects the link for "Credit Bureau Inquiry" **56**, shown in Fig.

10   4. The client **6** provides a user name and password, as shown in Fig. 5, which is protected by HTTPS **58**. The CGI application on the CPU **2** performs user authentication, preventing unauthorized users from accessing the services of the present invention.

Next, the client **6** enters credit inquiry data (e.g., customer name, address, and

15   social security number), protected by HTTPS, within text boxes on an Inquiry Form provided by the web site of the present invention **60**. Fig. 6 illustrates an example of the Inquiry Form. The data entered by the client **6** are in the HyperText Markup Language (HTML) format. When the client **6** clicks a "SUBMIT" button on the Inquiry Form, as shown in Fig. 6, the CPU **2** verifies that the client's web browser supports standard 128-

20   bit SSL technology. If this technology is supported, then the client's web browser encrypts the data using the standard 128-bit SSL technology, and the encrypted data is passed to the CGI application residing on the CPU **2**. If the client's web browser does not support 128-bit SSL technology, then the CPU **2** sends the client **6** a message stating

that a 128-bit version of, for example, the Netscape Navigator or Microsoft Internet Explorer web browser must be downloaded before proceeding.

Whenever, a client **6** either requests credit information from, or reports credit information to, a credit bureau **8**, the CPU **2** executes the CGI program. The CGI application's main process first decrypts the data **62**. Referring to the CPU **2** program flow illustrated in Fig. 7 and to the inquiry procedural flow of Fig. 2, the main process then reads and parses the parameters passed from the HTML Inquiry Form **100**, verifying the validity and consistency of the Inquiry Form data **102**.

After determining which credit bureau **8** to access **104**, the main process determines which type of credit bureau response the client **6** is requesting **106**. For example, referring to the embodiment of the present invention depicted in Fig. 6, clients **6** may request the following types of responses: "Std" (Standard), "Beacon," "O/L Dir" (Online Directory), and "All." These choices reflect the types of products that are available from Equifax. If a client **6** wants to make a standard inquiry and receive no additional information from Equifax, then the client **6** selects "Std." If the client **6** selects "Beacon," Equifax will send the client **6** an additional product called a Beacon® score, which is a scoring system developed by Equifax to help creditors make credit decisions. If the client **6** selects "O/L Dir," Equifax will send the client **6** an additional product called Online Directory, which provides the client **6** with telephone numbers for companies provided in the response to the inquiry. Finally, if the client **6** selects "All," then Equifax will send both Beacon® and Online Directory as additional products.

After determining the type of credit bureau response, the main process opens the corresponding Session Definition File (SDF) **108**. The main process then reads and

parses the SDF **110** and the Inquiry Definition File (IDF), and combines the Inquiry

Segment pattern (i.e., the data pattern required by the credit bureau **8**) in the IDF with the

SDF data and the inquiry data obtained from the HTML Inquiry Form **112**. The main

process places the reformatted data into an input file. The result is a temporary file

5   containing the Inquiry Segment in the standard format required by the particular credit

bureau **8** to receive the request **114**.

The standard format, for example, for Equifax, is called "System-to-System." All

major credit institutions have a similar standard for providing an on-line credit inquiry

and reporting interface with their central computers. With proper credit institution

10   approval, the present invention can be configured to interface with any of these credit

institutions by programming a separate CGI application for each credit institution.

Generally, a credit bureau's interface standard contains the following: (1) a list of

supported communication protocols/methods; (2) a list of available sign-on procedures;

and (3) a list of settings the credit bureau's computer expects to be answered before data

15   transmission can proceed.

After reformatting the data, the CGI application "forks" the program (i.e., initiates

the child process) **116**. The child process, in the form of the proxy application, initiates a

query to the credit bureau's computer **8** by executing a communications program **116**.

The communications program accesses the Session Script File and uses instructions

20   found in the file to log on to the credit bureau's computer **118** over a dedicated

connection circuit or line **10**. The dedicated line **10** is a high-speed, unshared

communications link between the CPU **2** and the credit bureau **8**. The communications

program transmits the Inquiry Segment **64** to the credit bureau **8** and receives the non-HTML response **66** in the form of a Report Segment or an Error Segment.

Upon receiving the credit bureau's response, the child process creates an output file containing the response. The parent process (i.e., the main process of the CGI

5   application) waits for the child process to terminate, and then examines the returned data **120**. If the data indicates a communications error, the parent process sends an appropriate message in HTML format to the client **120**. If no communications error occurred, the parent process accesses the Report Description File and uses the file to parse the received data in the output file **122**. The parent process then determines

10   whether the returned segment was an Error Segment **124**. Error Segments are generated by a credit bureau **8** if the credit bureau **8** experiences an internal error or if the Inquiry Segment contained invalid data, such as a name and social security number that are not found in the credit bureau's files.

The parent process accesses the Output Description File (ODF), parses the ODF,

15   and uses the information found in the ODF to convert the Report Segment received from the credit bureau **8** into the format defined in the ODF (preferably HTML) **126**. The parent process then encrypts the HTML data using 128-bit SSL technology **68** and sends the result over the Internet **4** to the client's computer **70**. The response is displayed in its native format, which could be either a text-oriented terminal or, preferably, an HTML-

20   based browser **74**. In the preferred embodiment, the data is displayed in a web browser after verification of the authenticity of the response **72** in a more readable format. The response is not cacheable **76**. To preserve the response, the client **6** must print or save the response **76**.

When the client 6 is finished, the client terminates the session with the central processor 2 of the present invention 78, and finally terminates the connection with the ISP 80. Normally, in about 5 seconds to about 10 seconds, the credit bureau 8 will have processed the request and returned the report to the CPU 2. Likewise, the transaction

5   may be completed and the report made available to the client 6 in about 5 seconds to about 10 seconds, depending on factors such as bandwidth, types of computers used, and number of users.

The present invention also allows clients 6 to report credit information to the credit bureaus 8. Examples of forms the client 6 completes for credit reporting are shown

10   in Figs. 8-10. The preferred embodiment for the credit reporting aspect of the present invention uses the "Metro" format standard. The Metro format is a universal standard that all major credit institutions adhere to. The format defines codes to report for credit criteria such as past due status, repossession, and bankruptcy. The present invention warehouses these reports for approximately a 30-day period. Then, the reports are

15   downloaded to tape media, and the tapes are forwarded to the appropriate credit bureau 8.

The procedures for providing credit information to a credit bureau 8 are illustrated in Fig. 11. The procedures are similar to the procedures for requesting a credit inquiry, except that the client 6 selects the link for "Credit Bureau Reporting" 150 rather than "Credit Bureau Inquiry" 56, as shown in Fig. 12, and enters credit report 152 rather than

20   credit inquiry 60 information. In addition, after the CPU 2 decrypts and reformats the data transmitted to it from the client 6, the CPU 2 warehouses the data 154 rather than sending the data immediately to the credit bureau 8. Approximately once a month, the

service provider downloads the reports to tape media and forwards the tapes to the appropriate credit bureau **8**.

Accordingly, the present invention provides efficient and secure delivery and reporting of personal credit information to and from credit institutions using the Internet. Among the advantages include the ability to use standard web browsers and the HTML format for more easily read and understood credit information.

<div align="center">Example</div>

The following example illustrates how a client **6** might use the present invention to request personal credit information pertaining to a potential customer.

Herman would like to purchase a car. Herman drives to his local car dealer and finds a car he likes. He will need financing to purchase the car.

The car dealer is a client of e-CBI. The car salesman, Joe, needs a credit report on Herman to complete the loan application, so he finds an available personal computer (PC) at the dealership. The PCs in the dealership have web browsers with 128-bit SSL encryption capabilities. The PCs also have access to the Internet through the services of a local ISP.

Joe connects to the Internet and uses the web browser to access e-CBI's web site, establishing an HTTP connection to the e-CBI central processing unit (i.e., web server). On the initial screen, Joe selects the link for "Members Only," initiating an HTTPS session. See Fig. 3. On the next screen to appear, Joe selects the link for "Credit Bureau Inquiry" and enters a username and password. See Figs. 4 and 5. An Inquiry Form is

displayed to collect the credit information. See Fig. 6. Joe enters credit inquiry data about Herman on the Inquiry Form, which is in HTML format. Joe also selects a standard type of response from the credit bureau. When Joe completes the form, he clicks the "SUBMIT" button on the form. The web browser on Joe's computer encrypts

5   the data and sends it to a CGI application on e-CBI's server.

The CGI application decrypts the data. The CGI application parses the decrypted data, verifying the validity and consistency of the data. In this example, the credit bureau to access is pre-selected to be Equifax. Based upon the credit bureau report type entered on the Inquiry Form, the CGI application opens a corresponding Session Definition File

10 (SDF). The CGI application parses the SDF and Inquiry Definition File (IDF) and combines the Inquiry Segment pattern in the IDF with the SDF data and inquiry data from the Inquiry Form. The data, which is now formatted to meet the credit bureau's requirements, is placed into an input file.

The CGI application initiates a child (proxy) application, which executes a

15 communications program. The communications program uses data in the Session Script File to log on to the credit bureau's computer and send the Inquiry Segment to the credit bureau over a dedicated line. Assuming the credit bureau has credit information concerning Herman and no errors in transmission occur, the credit bureau uses the Inquiry Segment to pull a credit report, and sends the non-HTML credit report as a

20 Report Segment back to the child process on the e-CBI server. The child process places the Report Segment into an output file. Control returns to the parent.

Assuming no communications errors, the CGI application uses data in the Report Description File to parse the data in the output file. The CGI application uses data in the

Output Description File to convert the Report Segment in the output file to HTML format.

The CGI application encrypts the output file and sends the result over the Internet to Joe's computer, where the data is displayed in Joe's web browser as a credit report for

5   Herman. An example of a credit bureau response is provided in Figs. 13A-13D. Joe prints a copy of the report, then ends the session with e-CBI and terminates the connection with his ISP. Approximately 10 seconds elapsed from the time Joe submitted the credit information to e-CBI until the report was displayed on his computer screen.

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